5HE-12

AUG 14 1985

Mr. W. Weddendorf
NL Industries, Inc.
P.O. Box 1090
Highstown, New Jersey 08520

Dear Mr. Weddendorf:

Enclosed are the remaining comments which U.S. EPA wants to make with regard to the O'Brien and Gere submittals for the Granite City, Illinois site. Any questions should be brought to my attention at (312) 886-4726.

Sincerely,

Neil Meldgin 8/19/85

Neil Meldgin

cc: R. Grimes, ORC

NM:clm:WMD:HWEB:CERCLA Enforcement Section:8/19/85

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: August 9, 1985

SUBJECT: Quality Assurance Project Plan (QAPP) and Associated Work and Sampling Plans, NL Industries, Granite City, Illinois

FROM: James H. Adams, Jr., Chief
Quality Assurance Office

TO: Norman Niedergang, Chief
CERCLA Enforcement Section

ATTENTION: Neil Meldgin

Our Office has reviewed the subject QAPP in reference to the Consent Decree, Proposed Work Plan (dated June, 1985, and the Draft report of Illinois Environmental Protection Agency titled "A Land Pollution Assessment of Granite City/Taracorp Industries", May, 1984. A handwritten draft of this memo was previously sent Mr. Meldgin by David A. Payne, Chemist, Quality Assurance Office on July 31, 1985.

The QAPP is unacceptable as written. Our Office's comments are detailed below. We should first comment on the Work Plan, because it defines the sampling and analytical program that the QAPP will follow. The proposed Site Investigation appears minimal in parameter coverage, number of samples collected, and scope. If you require the Work Plan to be expanded in scope, the QAPP will also have to be rewritten. If the Work Plan remains unchanged, this memo will be applicable only to the QAPP and Sampling Plan.

I. WORK PLAN

The Work Plan provides for a Site Investigation, in 4 parts, as required by the Statement of Work.

A. Waste Characterization

Four surface slag samples, 10 sieved (3/8" sieve) upper strata samples, and 4 SLLR pile (rubber product pile) samples will be tested for total lead content, and for 8 metals after EP extraction. The EP extraction is used for waste disposal purposes under RCRA and should not be considered an indicator of on-site contamination. Table 2 of the Work Plan specifies that 7 metals, other than lead, will only be done for the EP Extracts. No total metals analyses, other than lead, are planned for the wastes.

Task 3a of the Statement of Work specifies a complete sampling and analysis program will be done to characterize all materials of interest. Is

lead only and surface wastes sufficient for the Work Plan? The Work Plan does not address tanks, drums, or the interior of waste piles. Are the wastes to be characterized for parameters other than lead? Compatability of wastes is not addressed by the Work Plan. Is lead the only constituent of concern for waste characterization?

B. Hydrogeologic Investigation

A deep (50' - 60' depth) monitoring well and associated test boring samples may or may not be drilled. If done, the test borings may or may not be sampled and analyzed. Twelve (12) monitoring wells will be tested, using filtered sample aliquots only, for the 8 metals regulated by the Safe Drinking Water Act. This program does not seem consistent with the ambitious program required by Task 3b of the Statement of Work. This Investigation does not seem to address the determination of horizontal and vertical distribution of contaminants, and does not specifically address background levels of contamination. Background levels may be assumed but the Work Plan does not describe any specific wells as background wells.

The 1983 Illinois EPA report documented the analysis of 10 metals, several anions and total dissolved solids for the groundwater. The report suggests no contamination is moving off-site in the groundwater; however elevated sulfate concentrations were found in groundwater other than in Well #18. The Illinois EPA report recommends the following parameters should be tested in future studies:

As, B, Cd, Fe, Pb, Mn, Ni, Zn, Cl, SO_4, and TDS. These differ from the Work Plan proposed parameters.

The Work Plan and Statement of Work is primarily concerned with lead in the groundwaters and soil borings; however, lead may not be the primary contaminant in groundwater. The 1984 Illinois EPA report documents sulfate concentrations at concentration levels of hundreds and thousands of mg/l. High sulfate concentrations should immobilize or minimize the transport of sulfate, so long as sulfate remains present, as insoluble lead sulfate. Well 18D of the Illinois EPA Study report has sulfate concentrations exceeding 2,000 mg/l but nonexistent lead. Other toxic metals (ex. - cadmium) are present in gross concentrations (>10 mg/l Cd). The leachability and transport of cadmium or zinc would be expected greater than lead or barium in the presence of large sulfate concentrations. Other metals besides barium and lead (forming insoluble sulfates), and besides silver (not expected to be present) should be the primary parameters to measure in the groundwater and soil borings.

We strongly recommend that:

1. Groundwater be tested for all metal contaminants both as unfiltered samples and filtered samples. These should be tested in associated soil borings as appropriate. Complete metals analyses should be done on initial groundwater samples. The Work Plan has only 8 metals. The previous Illinois EPA study tested 10 metals. Neither study has complete metals determinations per CLP inorganic routine analytical services.

2. Suspended solids be measured on all waters, so as to interpret any unfiltered sample metal results having unusual metals results for the amount of suspended solids present.

3. pH, sulfate, alkalinity (and acidity if acid samples are encountered), total dissolved solids (TDS), and other appropriate anions be tested for each groundwater. These parameters should be applied to associated soil borings as appropriate. Tests of leached soil aliquots could be done for sulfate. The analysis of anions and TDS would serve as indicator parameters for any groundwater plume as they are probably the most soluble or leachable materials from the site. Sulfate is a contaminant itself at high concentrations.

C. Soils and Sediments Investigation

The Statement of Work specifies a program will be conducted to determine the location and extent of contamination of both surface and subsurface soils. The Work Plan only utilizes surface samples at 0-3 inch, and 3 to 6 inch depths. The Illinois EPA report documented elevated lead concentrations at a 15 foot depth in soils. The surface soil sampling for lead appears inconsistent with the Statement of Work specifications.

D. Surface Water Investigation

Four rainfall run-off and 4 sediments near the catch basins are to be tested for lead only. The run-off samples are to be filtered. It is recommended that these run-off samples not be filtered and suspended solids and metal contaminants, besides lead, be tested also on the run-off samples.

E. Air Investigation

The Work Plan's specification of no air monitoring appears inconsistent with Statement of Work specifications. Have all primary sources and all fugitive sources of lead contamination been identified?

F. Special QA and Analytical Methodology Considerations

Two items for analytical methodology or QA need to be discussed in the context of the Work Plan or level of QA necessary for QAPP considerations:

1. Total Metals Analysis of Wastes

The surface slag, sieved upper strata, and SLLR wastes are to be tested for lead content and possibly other metals contents. The analytical methodology specified by the QAPP involves an acid digestion normally used for CERCLA investigations of soils and waters. The wastes involved at Granite City may well be refractory (slag) or rubber/plastic (SLRR pile). If you want total lead in these wastes, a different sample digestion will be needed

that will ensure complete dissolution of the waste prior to analysis. If you wish to use the Contract Laboratory Program (CLP) digestion for these specific waste types, the metals contents should be described as "acid leachable" or "recoverable" metals within the context of the Work Plan or this remedial investigation.

Analysis of total metals for soil, water, and groundwater is acceptable using the CLP sample digestion protocols. Digestion methods for the wastes need to be discussed in more detail for the wastes, in relation to data usages and study needs, prior to any laboratory analyses.

2. Level of QA Effort

The groundwaters are to be analyzed for a variety of metals. Many of these waters have large concentrations of sulfate that will interfere in the analysis of lead and barium (precipitate formation) or arsenic and selenium (matrix interferences in the graphite furnace). Routine QA practices, when interferences are not expected, involve a QA audit effort 10-20% of the sample workload. In order to provide accurate metals analysis (As, Se, Pb, Ba), a QA effort of 100%, or accuracy checks on a sample-by-sample basis, may have to be done. Prior to any laboratory analyses, the laboratory should demonstrate accurate metals analyses for expected concentrations of interfering sulfate for both groundwaters and surface waters. The high sulfates will have to be factored into the level of QA effort necessary for the project.

II. QAPP AND SAMPLING PLAN

The QAPP is not acceptable. Little or no specific information is provided within the QAPP. There is insufficient information to determine the acceptability of the support laboratory. The QAPP needs to be rewritten from scratch. There is insufficient time to write all deficiencies in this document at present. The QAPP needs to be rewritten to include, but not limited to, the following:

1. Project Objectives which are consistent with the minimal investigations of the Work Plan, or a Work Plan that is consistent with the ambitious objectives in the Statement of Work.

2. Intended Data Usages.

3. A clear understanding of the parameters and matrices to be analyzed including any field measurements and geophysical testing of soils.

4. A project organization and responsibility element which identifies 1) functional activities of field investigations, 2) laboratories used, 3) laboratory QA responsibility, 4) data assessment, 5) Region V QA oversight, and 6) etc.

5. Specific QA Objectives for all measurements.

6. Identifiable of Chain-of-Custody procedures for the field, laboratory, and final evidence files.

7. Specific analytical methods that are consistent with specific QA Objectives. I have identified problems with sample digestion procedures for the wastes. Implementation of SW-846 methods for RCRA testing and total metals analyses of wastes needs to be detailed. The metals methods identified for water analyses (flame atomic absorption) may be insufficiently sensitive for study needs. Filtering of waters may not be appropriate.

8. Specific Laboratory QC Procedures.

The actual QC Protocols for laboratory analyses need to be detailed. The QC Procedures of the present QAPP are too generic and actually refer to practices used for CLP organic analyses and not inorganic analyses.

9. Performance and System Audits

Performance Audits or independently prepared reference samples for accuracy checks need to be detailed.

The Sampling Plan appears too brief. Field filtration of water sample aliquots is not described. Specific Chain-of-Custody procedures are not detailed.

For the information provided in the draft QAPP, we cannot determine if the analytical laboratory will be acceptable, or not. We cannot determine if resulting data will meet study objectives, because objectives are not detailed.

cc: T. Rutter, ERRB
J. Hooker, IEPA